

Message Text

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ORIGIN PM-05

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TO AMEMBASSY CANBERRA
INFO SECDEF WASH DC ISA FMRA
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AFSC ANDREWS AFB MD FA
ASD WPAFB OH XOP
4950TW WPAFB OH DOMM

C O N F I D E N T I A L STATE 148496

E.O. 11652:ADS-DECLASSIFY UPON COMPLETION OF NEGOTIATIONS

TAGS: MARR, OCLR, AS, US

SUBJECT: SATELLITE COMMUNICATION (SATCOM) PROJECT 1227

REFS: A. STATE 039451 (DTG 142344Z FEB 78)
B. CANBERRA 4123 (DTG 300652Z MAY 78)

1. THE ANSWERS TO QUESTIONS POSED IN REF B ARE PROVIDED
BELOW IN THE ORDER THEY WERE ASKED:

2. FOR QUESTION A OF REF B:

-----A. THE EXPERIMENTAL SATELLITE COMMUNICATIONS HARDWARE
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(SEE REF 2, PARA 1 AND 2) CONSISTS OF A 100 WATT TO 14 KILO-
WATT OUTPUT TRANSMITTER, A LOW NOISE RECEIVER, DIGITAL
MODULATOR/DEMODULATORS (MODEMS), AND A COMPUTER AIMED 36
INCH DISH ANTENNA.

B. THE EQUIPMENT IS CAPABLE OF OPERATION (SEE REF A, PARA
2) IN UHF, SHF (X BAND), AND EHF (KU BAND) FREQUENCIES FOR

USE WITH VARIOUS SATELLITES (SEE REF A, PARA 2).

C. THE EQUIPMENT IS BEING DEVELOPED FOR GLOBAL COMMAND AND CONTROL COMMUNICATIONS FOR THE USAF. IT WILL BE TEST FLOWN

FOR APPROXIMATELY TWO YEARS STARTING NEXT MONTH.

D. ITS EFFECTIVENESS WILL BE TESTED WORLDWIDE, INCLUDING ARCTIC AND EQUATORIAL REGIONS, EUROPE, SOUTH AMERICA, AND ACROSS THE NORTH AND SOUTH ATLANTIC AND PACIFIC OCEANS. THIS IS NECESSARY TO ASSURE EQUIPMENT SUITABILITY UNDER MANY PROPAGATION CONDITIONS AND WITH MANY DIFFERENT SATELLITES.

E. TESTING IS ACCOMPLISHED WHILE AIRBORNE TO SIMULATE FUTURE COMMAND POST TYPE AIRCRAFT INSTALLATIONS. LIMITED GROUND TESTING IS SOMETIMES USED TO PRE-FLIGHT CHECK THE CONDITION OF THE EQUIPMENT BEFORE TAKEOFF. THE GROUND STATIONS REFERRED TO IN REF A WHICH WILL BE USED DURING THE SATCOM TESTING OVER AUSTRALIA ARE THOSE LOCATED AT WRIGHT PATTERSON AFB, OHIO, AND THE NAVAL RESEARCH LABORATORY, WALDORF, MD.

3. FOR QUESTION B OF REF B:

A. SATELLITES TO BE ACCESSED INCLUDE LINCOLN EXPERIMENTAL
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SATELLITES (LES-8 AND 9) AT K AND UHF BANDS, AND DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS) 9434 (INDIAN OCEAN), 9437 (ATLANTIC), AND 9438 (PACIFIC) AT X AND UHF BANDS.

B. ALL SATELLITES ARE USED ONLY AS COMMUNICATION LINK RELAYS FOR REPETITIVE, TEST-TYPE MESSAGES PRIMARILY BY TELETYPE (TTY) AND OCCASIONALLY BY DIGITIZED VOICE (VOCODER)

4. FOR QUESTION C OF REF B: THE FOLLOWING FREQUENCY AUTHORIZATIONS ARE BEING SOUGHT IAW INTERNATIONAL TELECOMMUNICATIONS UNION PROCEDURES: 7900-7950; 7975-8100; 8125-8175; AND 8215-8400 MHZ, EMISSION M2.5F9, POWER 14 KW. AIRCRAFT WILL TRANSMIT AND RECEIVE SATCOM TEST DATA WHILE AIRBORNE AND DURING PRE AND POST FLIGHT CHECKOUT (APPROXIMATELY 2 HOURS DURATION).

5. FOR QUESTION D OF REF B: USING AUSTRALIA AS A STAGING AREA IS DESIRED IN ORDER TO ALLOW TEST FLIGHTS SOUTH TO THE ANTARCTIC REGION (TO SAMPLE DISTURBED IONOSPHERIC INTERFERENCE), WEST TO THE INDIAN OCEAN (TO APPROACH DSCS SATELLITE NUMBER 9434) AND NORTHEAST TO HAWAII (TO PASS DIRECTLY UNDER DSCS SATELLITE 9438, TESTING COMPUTER AN-

TENNA POINTING ANOMALIES AT ZENITH). PACIFIC FLIGHTS APPROACHING AND DEPARTING AUSTRALIA WILL ALSO ALLOW EXTREME RANGE, LOW ELEVATION ANGLE, AND MULTIPATH TESTS AT UHF AND KU BANDS TO THE LES 8 AND 9 SATELLITES.

6. FOR QUESTION E OF REF B:

NONE INTENDED.

7. FOR QUESTION F OF REF B:

THIS EQUIPMENT DEVELOPMENT AND FLIGHT TEST IS SPONSORED BY THE USAF AVIONICS LABORATORY AS PART OF USAF PROJECT 1227 FOR SATELLITE COMMUNICATIONS SYSTEMS DEVELOPMENT.
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8. FOR QUESTION G OF REF B:

IN ADDITION TO THE EXPERIMENTAL SATELLITE COMMUNICATIONS AIRBORNE TERMINAL EQUIPMENT OUTLINED IN PARA 3 ABOVE, THE AIRCRAFT IS ALSO EQUIPPED WITH TWO OLDER MODEL UHF ONLY TELETYPE SATELLITE COMMUNICATIONS TERMINALS (100 WATT AND 1,000 WATT OUTPUT) WITH OMNIDIRECTIONAL BLADE ANTENNAS. THE AIRCRAFT ALSO CARRIES INSTRUMENTATION SUCH AS TAPE RECORDERS, SPECTRUM ANALYZERS, OSCILLOSCOPES, ETC (FOR MONITORING THE STATUS OF THE EQUIPMENT UNDER TEST), AND AN LTN-51 INERTIAL NAVIGATION SYSTEM (INS) AND IBM 4 PI CP-2 COMPUTER USED TO CALCULATE ANTENNA POINTING ANGLES FROM THE AIRCRAFT'S PRESENT POSITION TO ANY DESIRED SATELLITE. THE AIRCRAFT CARRIES NO PHOTO GEAR, NO OTHER SENSORS OR RECEIVERS, AND NO OTHER TRANSMITTERS, EXCEPT FOR STANDARD C-135 AIRCRAFT RADIOS (HF, VHF, UHF) AND ALTIMETERS.

9. FOR QUESTION H OF REF B:

A. THE SYDNEY TO EDINBURGH FLIGHT PATH IS PLANNED AS THREE HOURS FLIGHT NEAR DUE SOUTH THEN DIRECT TO EDINBURGH, IN ORDER TO SAMPLE ANY DISTURBED IONOSPHERE PROPAGATION EFFECTS NEARING THE ANTARCTIC.

B. THE EDINBURGH TO PERTH FLIGHT PATH IS PLANNED AS FOUR HOURS DUE WEST THEN DIRECT TO PERTH, IN ORDER TO APPROACH DSCS SATELLITE NUMBER 9434 IN THE INDIAN OCEAN.

10. HOPE THIS MESSAGE WILL ASSIST IN ALLEVIATING AUSTRALIAN POLITICAL SENSITIVITY OVER THIS MATTER. VANCE

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Message Attributes

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